Stanford

Mrinmoy Sanyal

Casual - Non-Exempt, Radiation Oncology - Radiation Therapy

Bio

BIO

Mrinmoy Sanyal obtained his undergraduate and master's degree in Human Physiology at the University of Calcutta. He did his Ph.D. in Biochemistry at All India Institute of Medical Sciences, New Delhi, working on reproductive immunology, with the focus on trophoblast invasion and differentiation and their role in human blastocyst implantation. Then, he moved to Stanford University for a postdoctoral fellowship on the role of transcription factor Pbx1, a leukemia proto-oncogene, on B cell development. Currently, he is Research Scientist at Department of Biochemistry, Stanford University. His work covers various topics, including B cell responses to viral infection and vaccination, human primary immunodeficiency, and biology of lymphocyte development and function and to elucidate etiology of immunological disorders.

EDUCATION AND CERTIFICATIONS

- Postdoctoral Fellowship, Stanford University , Immunology
- PhD, All India Institute of Medical Sciences , Biochemistry

Professional

PROFESSIONAL INTERESTS

Immune response to natural infection and viral vaccine

Reverse Vaccinology

Human immunodeficiency

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Associate Editor, Frontiers in Immunology, Vaccine and Molecular Therapeutics (2022 - present)
- Topic Editor, Frontiers in Immunology, Methods in Vaccine and Molecular Therapeutics (2022 - present)
- Editorial Board Member, Public Library of Science (2018 - present)
- Academic Editor, PloS One (2018 - present)
- Editorial Advisory Board Member, Pulmonary Therapy (Springer Nature) (2019 - present)

Publications

PUBLICATIONS

- **A SARS-CoV-2 vaccine on an NIR-II/SWIR emitting nanoparticle platform.** *Science advances*
  Jiang, Y., Sanyal, M., Hussein, N. A., Baghdasaryan, A., Zhang, M., Wang, F., Ren, F., Li, J., Zhu, G., Meng, Y., Adamska, J. Z., Mellins, E., Dai, et al
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- **Design of universal Ebola virus vaccine candidates via immunofocusing.** *Proceedings of the National Academy of Sciences of the United States of America*
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- **Vaccine design via antigen reorientation.** *Nature chemical biology*
  Xu, D., Carter, J. J., Li, C., Utz, A., Weidenbacher, P. A., Tang, S., Sanyal, M., Pulendran, B., Barnes, C. O., Kim, P. S.
  2024

- **A ferritin-based COVID-19 nanoparticle vaccine that elicits robust, durable, broad-spectrum neutralizing antisera in non-human primates.** *Nature communications*
  Weidenbacher, P. A., Sanyal, M., Friedland, N., Tang, S., Arunachalam, P. S., Hu, M., Kumru, O. S., Morris, M. K., Fontenot, J., Shirreff, L., Do, J., Cheng, Y. C., Vasudevan, et al
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- **A ferritin-based COVID-19 nanoparticle vaccine that elicits robust, durable, broad-spectrum neutralizing antisera in non-human primates.** *bioRxiv : the preprint server for biology*
  Weidenbacher, P. A., Sanyal, M., Friedland, N., Tang, S., Arunachalam, P. S., Hu, M., Kumru, O. S., Morris, M. K., Fontenot, J., Shirreff, L., Do, J., Cheng, Y. C., Vasudevan, et al
  2022

- **Designing epitope-focused vaccines via antigen reorientation.** *bioRxiv : the preprint server for biology*
  Xu, D., Li, C., Utz, A., Weidenbacher, P. A., Tang, S., Sanyal, M., Pulendran, B., Kim, P. S.
  2022

- **Human sperm TMEM95 binds eggs and facilitates membrane fusion.** *Proceedings of the National Academy of Sciences of the United States of America*
  Tang, S., Lu, Y., Skinner, W. M., Sanyal, M., Lishko, P. V., Ikawa, M., Kim, P. S.
  2022; 119 (40): e2207805119

- **Simplified Purification of Glycoprotein-Modified Ferritin Nanoparticles for Vaccine Development.** *Biochemistry*
  Weidenbacher, P., Musunuri, S., Powell, A. E., Tang, S., Do, J., Sanyal, M., Kim, P. S.
  2022

- **Chemically Modified Bacterial Sacculi as a Vaccine Microparticle Scaffold.** *ACS chemical biology*
  Weidenbacher, P. A., Rodriguez-Rivera, F. P., Sanyal, M., Visser, J. A., Do, J., Bertozzi, C. R., Kim, P. S.
  2022

- **Mechanisms of innate and adaptive immunity to the Pfizer-BioNTech BNT162b2 vaccine.** *Nature immunology*
  Li, C., Lee, A., Grigoryan, L., Arunachalam, P. S., Scott, M. K., Trisal, M., Wimmers, F., Sanyal, M., Weidenbacher, P. A., Feng, Y., Adamska, J. Z., Valore, E., Wang, et al
  2022

- **Adaption of a conventional ELISA to a 96-well ELISA-Array for measuring the antibody responses to influenza virus proteins and vaccines.** *Journal of immunological methods*
  Waltari, E., Carabajal, E., Sanyal, M., Friedland, N., McCutcheon, K. M.
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- **A single immunization with spike-functionalized ferritin vaccines elicits neutralizing antibody responses against SARS-CoV-2 in mice.** *bioRxiv : the preprint server for biology*
  Powell, A. E., Zhang, K. n., Sanyal, M. n., Tang, S. n., Weidenbacher, P. A., Li, S. n., Pham, T. D., Pak, J. E., Chiu, W. n., Kim, P. S.
  2020

- **Human VP8* mAbs neutralize rotavirus selectively in human intestinal epithelial cells.** *The Journal of clinical investigation*
  Feng, N., Hu, L., Ding, S., Sanyal, M., Zhao, B., Sankaran, B., Ramani, S., McNeal, M., Yasukawa, L. L., Song, Y., Prasad, B. V., Greenberg, H. B.
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- **Diminished B-cell response after repeat influenza vaccination.** *The Journal of infectious diseases*
  Sanyal, M., Holmes, T. H., Maecker, H., Albrecht, R. A., Dekker, C. L., He, X., Greenberg, H. B.
  2018

- **A Dominant Role for Regulatory T Cells in Protecting Females Against Pulmonary Hypertension.** *Circulation research*
  Tamosiuniene, R. n., Manouvakhova, O. n., Mesange, P. n., Saito, T. n., Qian, J. n., Sanyal, M. n., Lin, Y. C., Nguyen, L. P., Luria, A. n., Tu, A. B., Sante, J. M., Rabinovitch, M. n., Fitzgerald, et al
  2018

- **VP4-and VP7-specific antibodies mediate heterotypic immunity to rotavirus in humans** *SCIENCE TRANSLATIONAL MEDICINE*
  Nair, N., Feng, N., Blum, L. K., Sanyal, M., Ding, S., Jiang, B., Sen, A., Morton, J. M., He, X., Robinson, W. H., Greenberg, H. B.
  2017; 9 (395)

- **Selective expansion of human regulatory T cells in nasal polyps, and not adjacent tissue microenvironments, in individual patients exposed to steroids.** *Clinical immunology*
  Edward, J. A., Sanyal, M., Le, W., Soudry, E., Ramakrishnan, V. R., Bravo, D. T., Nguyen, A. L., Zarabanda, D., Kingdom, T. T., Hwang, P. H., Garrison Fathman, C., Nayak, J. V.
  2017; 179: 66-76

- **Lack of IL7Ra expression in T cells is a hallmark of T-cell immunodeficiency in Schimke immuno-osseous dysplasia (SIOD).** *Clinical immunology*
  Sanyal, M., Morimoto, M., Baradaran-Heravi, A., Choi, K., Kambham, N., Jensen, K., Dutt, S., Dionis-Petersen, K. Y., Liu, L. X., Felix, K., Mayfield, C., Dekel, B., Bokenkamp, et al
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- **Distinct patterns of B-cell activation and priming by natural influenza virus infection versus inactivated influenza vaccination.** *journal of infectious diseases*
  He, X., Holmes, T. H., Sanyal, M., Albrecht, R. A., García-Sastre, A., Dekker, C. L., Davis, M. M., Greenberg, H. B.
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- **Peripheral blood-derived mesenchymal stem cells: candidate cells responsible for healing critical-sized calvarial bone defects.** *Stem cells translational medicine*
  Li, S., Huang, K., Wu, J., Hu, M. S., Sanyal, M., Hu, M., Longaker, M. T., Lorenz, H. P.
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- **Systemic prednisone administration selectively alters granulocyte subsets in nasal polyps from aspirin-exacerbated respiratory disease and chronic rhinosinusitis patients.** *International forum of allergy & rhinology*
  Edward, J. A., Sanyal, M., Ramakrishnan, V. R., Le, W., Nguyen, A. L., Kingdom, T. T., Hwang, P. H., Nayak, J. V.
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- **Characterization of human upper airway epithelial progenitors.** *International forum of allergy & rhinology*
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- **Penetrance of biallelic SMARCAL1 mutations is associated with environmental and genetic disturbances of gene expression** *HUMAN MOLECULAR GENETICS*
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- **PBX1: A Novel Stage-Specific Regulator of Adipocyte Development** *STEM CELLS*
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- **CD8(+)CD44(hi) but not CD4(+)CD44(hi) memory T cells mediate potent graft antilymphoma activity without GVHD** *BLOOD*
  Dutt, S., Baker, J., Kohrt, H. E., Kambham, N., Sanyal, M., Negrin, R. S., Strober, S.
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- **CD81 protein is expressed at high levels in normal germinal center B cells and in subtypes of human lymphomas** *HUMAN PATHOLOGY*
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- **Enhanced B cell activation in the absence of CD81** *INTERNATIONAL IMMUNOLOGY*
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- **Wiskott-Aldrich syndrome protein is an effector of Kit signaling** *BLOOD*
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- **B-cell development fails in the absence of the Pbx1 proto-oncogene** *BLOOD*
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